

Electronic Version 1.1

Stylesheet Version v1.1.1

Description

TOILET VENTILATION

TECHNICAL FIELD

[0001] The present invention relates to ventilation apparatus, and more particularly, to the type that is installed in a toilet.

BACKGROUND ART

[0002] Many toilet ventilators have been invented in the past, none of them included apparatus that ventilates the air space that exists above the water level in the tank in a conventional toilet, which air space is connected directly through the overflow tube to the water outlets in the rim of the toilet bowl, where noxious odors emanate.

[0003] For example, U.S. Patent Nos. 6219853 and 5906009 ventilate from below the flush valve. U.S. Patent Nos. 5991933 and 5839127 ventilate through specially-extended overflow tubes. U.S. Patent Nos. 5940893 and 4590629 force air from the overflow tube down into water in the tank. U.S. Patent Nos. 5718005, 6279173 and 3681790 remove air directly from the overflow tube. U.S. Patent No. 4583250 requires a specially-adapted overflow tube. U.S. Patent Nos. 6260215 and 6233750 remove air directly from the bowl.

[0004] Thus, none of these prior art systems utilize to the greatest extent possible the air passageways that are already built into conventional toilets in the simplest manner, by simply ventilating the air space in the tank to a conduit outside the room where the toilet is located.

[0005] It is one of the main objects of the present invention to provide an apparatus that

extracts gases discharged by users of a toilet from the air space in the toilet tank.

[0006] It is yet another object of this invention to provide such a apparatus that is inexpensive to manufacture and maintain while retaining its effectiveness.

[0007] Further objects of the invention will be brought out in the following part of the specification, wherein detailed description is for the purpose of fully disclosing the invention without placing limitations thereon.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] With the above and other related objects in view, the invention consists in the details of construction and combination of parts as will be more fully understood from the following description, when read in conjunction with the accompanying drawings in which:

[0009] FIG. 1 is a partially broken away side view of a first embodiment of the present invention.

[0010] FIG. 2 is a partially broken away side view of a second embodiment of the present invention.

[0011] FIG. 3 is sectional view taken along lines 3-3 of FIG. 2.

[0012] FIG. 4 is a partially broken away front view of a third embodiment of the present invention.

[0013] FIG. 5 is a partially broken away side view of the second embodiment of the present invention illustrating air flow.

DISCLOSURE OF INVENTION

[0014] Referring initially to FIG. 1, toilet 10 is conventional in every respect with the exception of conduit 12 in lid 14. Thus, toilet 10 has an open air passageway from

the bowl 16 through the rim 18, flush valve 20 and overflow tube 22 to an air space 24 above water 26 in tank 28. Conduit 14 passes between from the air space 24 to outside the room where the toilet is located through hose 30 and fan 32.

[0015] Preferably, a seal 34 is provided between the lid 14 and the top rim 36 of the tank 28. In many instances, the seal 34 may be omitted if the lid 14 and top rim 36 are adequately air-tight without a seal. An advantage of this embodiment is that it may be incorporated in an existing installation by merely replacing the preexisting lid with a new lid that has the conduit 12.

[0016] Referring now to FIG.s 2 and 3, in a first alternate embodiment all the conventional toilet parts are the same as in FIG. 1. The difference in this embodiment is that the conduit 50 is now integrally formed in a back wall 52 of the tank 54. Conduit 50 has an open inlet 56 above the water level 58, and an outlet 60 at the bottom conduit 50. Hose 62 passes through wall 64 of the room and is connected to fan 66.

[0017] An advantage of the integrally formed conduit is that it is essentially maintenance-free and as durable as the material from which the rest of the toilet is made. Moreover, the outlet 60 is hidden from view in positions from which users normally approach the toilet. A further advantage, compared to the embodiment of FIG. 1, is that the tank lid may be easily removed for maintenance of the internal parts of the toilet.

[0018] Referring now to FIG.3, again, all the conventional toilet features are present, except a conduit 80 is a tube 82 passing through an aperture 84 in a bottom wall 86 of the tank. Suitable fittings 88 prevent leakage. Open top 90 is above water level 92, and hose 94 passes outside the room where the toilet is located.

[0019] In operation, as best shown in FIG.5, air is removed from bowl 16 to the hose 62 as shown by the arrows.

[0020] Whereas, the present invention has been described with respect to specific embodiments thereof, it will be understood that various changes and modifications will be suggested to one skilled in the art, and it is intended to encompass such changes and modifications as fall within the scope of the appended claims.